



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/971,711	10/09/2001	Satoshi Sugaya	Q66406	4242

7590 10/28/2004  
SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
Suite 800  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037-3213

EXAMINER

JACKSON, ANDRE K

ART UNIT	PAPER NUMBER
----------	--------------

2856

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/971,711

Applicant(s)

SUGAYA ET AL.

Examiner

André K. Jackson

Art Unit

2856



--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 06 October 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet.

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: \_\_\_\_\_.

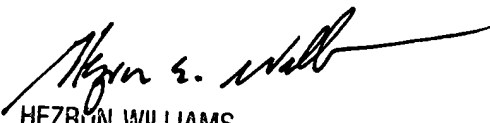
Claim(s) rejected: 14-21.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

8. ☐ The drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.
10. ☐ Other: \_\_\_\_\_.

Continuation of 2. NOTE: Applicants have argued that the Examiner's motivation to combine the Li et al. reference and Bennewitz et al. reference is not mentioned, taught and let alone suggested in the Li et al. reference and the Examiner has improperly borrowed from the Applicants' specification. Li et al. are concerned with making pyrochlore-type tungsten trioxide based sensors shown in figures 6 and 7 in as one embodiment of the invention. Applicants are strongly urged to see column 3 lines 25-65 of the Li et al. reference which provides the motivation to combine and since the duplication made here may not be accurate, column 3 lines 25-65 of the Li et al. : "During this heating process, the pyrochlore-type crystalline structure of tungsten trioxide would have been destroyed, thus rendering it impossible for use as a sensing element in a humidity sensor. The primary object of the present invention is to develop a solid-state humidity sensor, which contains pyrochlore-type tungsten trioxide in its sensing element. More specifically, the primary object of the present invention is to develop a hydrothermal process for making pyrochlore-type crystalline tungsten trioxide powders and/or growing pyrochlore-type crystalline tungsten trioxide films on a substrate, so as to enable a solid state humidity sensor to be made from pyrochlore-type tungsten trioxide. The pyrochlore-type tungsten trioxide based humidity sensors developed in the present invention exhibit excellent linearity between the resistance and relative humidity, and provide excellent ruggedness, durability, improved temperature and chemical resistances, as well as improved durability for long term use in high-humidity environments. The pyrochlore-type tungsten trioxide has a general formula of  $(M_{0.5}O_{0.5})_{x-1}WO_{3-x}H_{2x}$ , where M is a cation, x is approximately equal to 0.5, and z, which is the amount of crystalline water, is less than about 2. The value of z can vary depending on the water vapor pressure of the surroundings. In the process disclosed in the present invention, a tungstate salt (such as sodium tungstate,  $Na_2WO_4 \cdot 2H_2O$ ) is first dissolved into a solution. Then, the pH of the tungstate salt solution is adjusted to acidic or slightly basic (pH less than 8.5). After heating in a pressured vessel at temperatures above 70.degree. C., pyrochlore-type tungsten trioxide is obtained. Depending on whether a powder is formed during the hydrothermal process (due to precipitation), and the construction of the sensing element, the pyrochlore-type tungsten trioxide based sensing elements can be prepared according to four basic embodiments. First, a pair of electrodes can be screen-printed on one surface of a ceramic insulating substrate, then a powdery pyrochlore-type tungsten trioxide is screen-printed over the electrodes. Second, after the pair of electrodes are screen-printed on the surface of a ceramic insulating substrate, a pyrochlore-type crystalline tungsten trioxide film can be caused to grow over the electrodes". Applicants have also argued that Li et al. do not describe the structure of having an upper electrode joined to both the moisture sensitive layer and the insulating substrate. In Column 6, lines 21-49 and figures 6 and 7 this arrangement is shown and discussed.

In response to Applicant's argument that neither Kampe et al. nor Mobius et al. relate to humidity sensors, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963). The structure of the claim does not mention anything about a humidity sensor. Applicants argue that the filter film in the Tanino et al. reference has nothing to do with the humidity sensing part. The claim calls for a moisture sensitive layer, which is provided by Tanino et al. as element (10). Applicants are correct it has nothing to do with the humidity sensing part. The claim does not state that the moisture sensitive layer provides a measurement of humidity. The claim only states that there is a moisture sensitive layer, which is provided by Tanino et al. as film (10).

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800